Growing Your Savings

Saving is the first step in building your financial future. After you have created a budget, set your goals, and identified how much money you can save each month or year, think about what you will do with your money. Here are some choices:

1 Keep the money at home in a safe place.

2 Put your money in a *savings account* or *guaranteed investment certificate* (GIC) to earn interest.

3 Buy a *Treasury Bill* or a *Canada Savings Bond* to earn interest.

4 Buy some *stocks* to earn *dividends* or *capital gains*.

With the exception of the first option, choices 2–4 can help you to increase your savings. This means that you can increase your wealth by *investing*. An *investment* is anything you acquire that will give you future income or benefit.

Investments increase by generating income or by growing in value. To grow your money quickly, you need to understand and consider *interest*, or money that is paid out for the use of someone else's money. You will also need to learn about different kinds of investments. It is important to think carefully about the kind of investment you choose. There are good investments that will make money and bad investments that will cost money.

Investment Terms

Define the following terms:

- Interest
- Guaranteed Investment Certificate (GIC)
- Treasury Bill (T-Bill)
- Canada Savings Bonds
- Stocks
- Growing Your Savings

If an investment *grows at 5% per year* it means that after a year, 5% interest is paid. The value of the investment is 105% of (or 1.05 times) its original value. This new amount is called its accumulated value.

An investment of \$100 growing at 5% per year for one year has an accumulated value of \$100(1.05) or \$105.

1 Calculate the accumulated value of each of these investments after a year if they grow at 5% per year.

a) \$150 **b)** \$200 **c)** \$500 **d)** \$10 000

2 Calculate the accumulated value of each of these investments after a year if they grow at 11% per year.

a) \$100 **b)** \$175 **c)** \$645 **d)** \$8 159

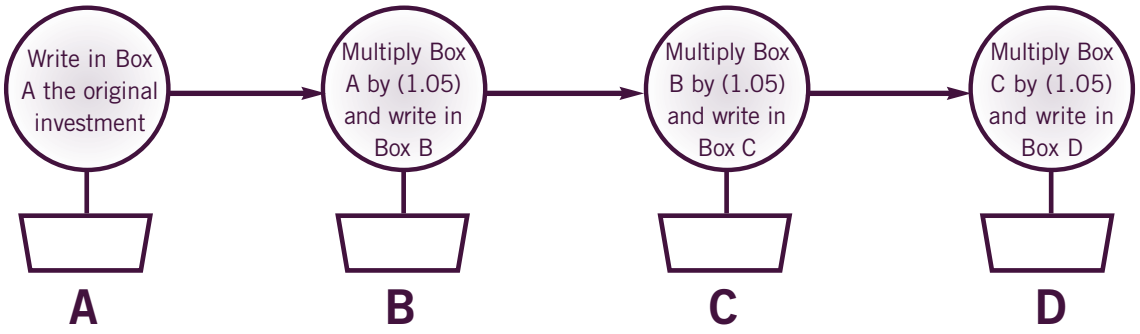
3 Suppose savings of \$$x$ are invested so that they grow at the rate of 5% per year for an entire year. Write an expression for the accumulated value of the investment at the end of one year.

4 Which expression gives the accumulated value of an investment of \$1 000 after one year if it grows at the rate of i% per year?

a) \$1 000 i **b)** \$1 000(1 + i) **c)** \$1 000(1 + i/100)

Test your answer by substituting 5 for i into the expression you have chosen. Does this give a reasonable accumulated value of \$1 000 growing at 5% per year?

5 **a)** The flow chart below shows how to calculate the accumulated value at the end of 3 years for any investment that grows at 5% per year.



Use this flow chart to calculate the accumulated value of \$1 000 at the end of three years if the growth rate is 5% per year. How much did the investment increase in the first year? How much did it increase in the third year? Did the investment increase by the same amount in both years? Explain why or why not.

b) Draw a flow chart to show how to calculate the accumulated value at the end of 4 years for any investment that grows at 8% per year. Use your flow chart to calculate the accumulated value of \$1 238 after 4 years growing at 8% per year.

c) By the end of Grade 9, Anita had saved \$526. What would be the accumulated value of these savings by the end of Grade 12 if she grew these savings at 10% per year?

The Value of Interest

Compound interest helps you build wealth faster. The original amount you invest earns interest, the next interest payment is calculated on both the original amount and the earned interest. *Simple interest* increases the value of the investment, but not as quickly as compound interest. Once you invest the money, simple interest is calculated each period but only on the original investment.

Here is a comparison of how both compound and simple interest are calculated on an investment of $5 000 for two years at 6%. Explain why the value of the investment with compound interest is larger.

Year	Value of Investment Compound Interest	Value of Investment Simple Interest
Original Investment	$5 000	$5 000
Year One	$5 300	$5 300
Year Two	$5 618	$5 600

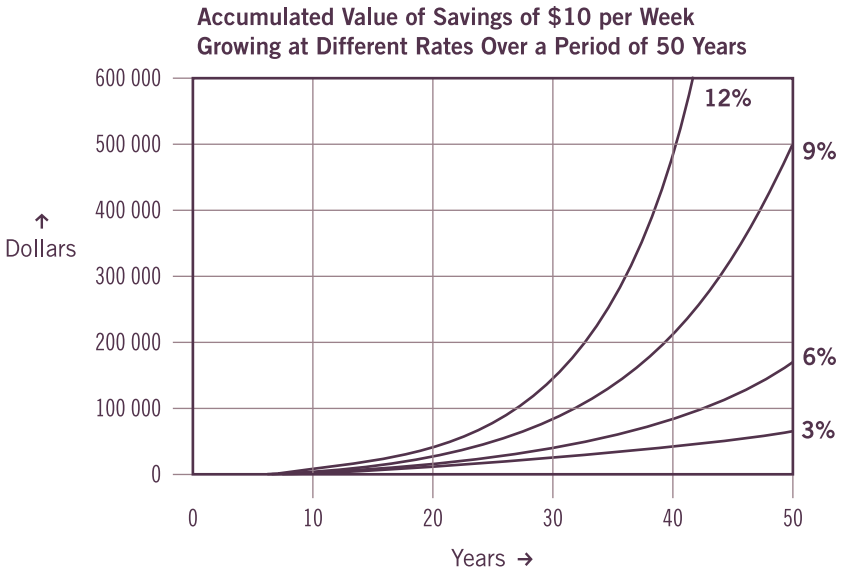
Whatever type of investment you choose, you must consider how quickly your investment will grow, usually expressed as a percentage *growth rate*. The following graph illustrates the difference growth rate can have on an investment.

This graph shows the accumulated value of your savings of $10 per week when it is growing at 3%, 6%, 9% and 12% compounded yearly.

1 What is the difference between the savings invested at 12% after 40 years and 9% after 40 years?

2 Use this graph to compare the value of your savings after 50 years for the interest rates: 3%, 6%, 9% and 12%.

3 What do you think this graph shows about the effect that growth rate has on your savings?



Internet Investigation

Comparing Savings, GICs, and T-bills

Visit the CANNEX Web site at: *www.cannex.com*

1 Using the tables in this Web site record:

- the annual interest rate offered on savings accounts by two different financial institutions.
- the annual interest rate offered on a one-year GIC.

2 Use the Web site *www.bankofcanada.ca* to find the annual interest rate offered on a treasury bill.

3 Which of the investments in 2 and 3 do you think is the best investment? Explain.

Name _____

Comparing Savings, GICs, and T-bills

Worksheet

Visit the CANNEX Web site at: *www.cannex.com*

1 Using the tables in this Web site record:

- The annual interest rate offered on savings accounts by two different financial institutions:

Financial Institution	**Annual Interest Rate**
a) _____	_____
b) _____	_____

- The annual interest rate offered on a one-year GIC:

_____

2 Use the Web site *www.bankofcanada.ca* to find the annual interest rate offered on a treasury bill:

_____

3 Which of the investments in 1 and 2 do you think is the best investment? Explain.

_____

_____

_____

_____

_____

_____

_____

_____

_____

_____

Canadian Entrepreneurs

The Canadian standard of living is the envy of the world. We not only have a generous supply of food, fresh water, and fresh air, but we also have the latest consumer goods including cell phones, computers, satellite T.V., CDs, and DVDs.

From where do these goods come? They are mostly the products of business and industry including farming, fishing, mining and various types of manufacturing.

From where do these businesses and industries come?

Most businesses began with an *entrepreneur*. An entrepreneur is someone who had a vision of how to make things better and who was willing to take a risk. When the entrepreneur is successful, the business usually generates financial rewards to the owner, benefits to the consumer, and jobs for all of us. Sometimes entrepreneurs donate large portions of their fortunes to hospitals, universities and other charitable institutions.

Since Confederation, Canada has been blessed with many entrepreneurs from farmers to high-tech wizards who have created a healthy Canadian economy and enhanced life for all Canadians. Now you will have a chance to meet some of them.

entrepreneur \ 1. the organizer of an economic venture; *esp:* one who organizes, owns, manages, and assumes the risks of a business.

In 1982 the family of Roy Thomson (Ken's father) donated $4.5 million toward the construction of what is now called Roy Thomson Hall.

Ken Thomson – Riches & Philanthropy

Ken Thomson (1923-2006) was one of the world's wealthiest individuals and the richest Canadian with estimated wealth of about 22.16 billion dollars (as of Dec. 2005).

In 1976, Ken inherited control of the family business that owned newspapers, oil and gas companies and book publishers. He then expanded that empire to include the Globe and Mail newspaper and a large share of the Hudson's Bay Company. In the 1990's, he sold most of his newspaper companies and expanded into the creation of Internet data-bases for professionals. The move from the print medium to the computer medium was a bold and dramatic move based on his vision of the future. Ken was also a very generous man. In 2002, he made an unprecedented gift of 50 million dollars to initiate a transformation of The Art Gallery of Ontario and 20 million dollars to endow future operations.

1 Express Mr. Thomson's wealth in scientific notation.

2 Estimate Mr. Thomson's wealth in US dollars if a US dollar is worth about $1.20 in Canadian dollars. Write this amount in scientific notation.

Joseph-Armand Bombardier – A Visionary Genius

Photo courtesy of Musée J.-Armand Bombardier

In 1922, when Joseph-Armand Bombardier was only 15 years of age, his father gave him an old Model T Ford. To fulfill his dream of creating a vehicle that could travel over snow, he attached the motor from the Model T and a propeller to an old sleigh. The result was the unusual contraption you see in the photo – *J. Armand Bombardier's first snowmobile*.

During the next half-century, his inventions became the basis of a huge international company, *Bombardier Inc.* that is one of the world's largest manufacturers of transportation vehicles including the Ski-Doo®, Sea-Doo®, aircraft, and subway cars. This company employs 80 000 people in 24 countries throughout the Americas, Europe and Asia-Pacific and has annual sales in excess of 21.6 billion Canadian dollars.

3 Express in scientific notation

a) The number of people employed worldwide by Bombardier Inc.

b) The approximate annual sales of Bombardier Inc.

Photo courtesy of Nickels Restaurants

Celine Dion – From Pennies to Nickels

Born on March 30, 1968, the youngest of 14 siblings, Celine Dion learned very early the importance of hard work and sacrifice. Her career as a singer began in her parents' small diner in Charlemagne, Quebec. With tightly focussed dedication, she honed her special vocal talents and rose to the top of the music world. Since 1983, she has won over a hundred international music awards and become an international celebrity. Celine has sold over 100 million albums worldwide and amassed a fortune estimated at almost a quarter billion dollars. Part of this fortune has been invested in a chain of 45 *Nickels Restaurants* in Canada and Florida. It seems she's returned to diners but this time as the owner.

4 Express in scientific notation

a) Ms. Dion's wealth.

b) The approximate number of albums she has sold.

Investigation: Working with a Million

Billionaire entrepreneurs are usually much older than most entrepreneurs. The reason for this is that a billion is a thousand times a million. It takes a long time to amass that much wealth. Occasionally someone like Bill Gates becomes a billionaire at a relatively young age, but great wealth usually takes a long time to grow. Tomorrow's billionaires are today's millionaires. The articles below feature some young Canadian entrepreneurs who are making contributions in the high-tech area and who may accumulate some wealth in the process.

Teenage Consultants

Michael Furdyk, 17 and Jennifer Corriero, 19, of Toronto, were hired as consultants by Microsoft in 2000. Mr. Furdyk and his partners made more than US$1-million after selling their on-line publishing company.

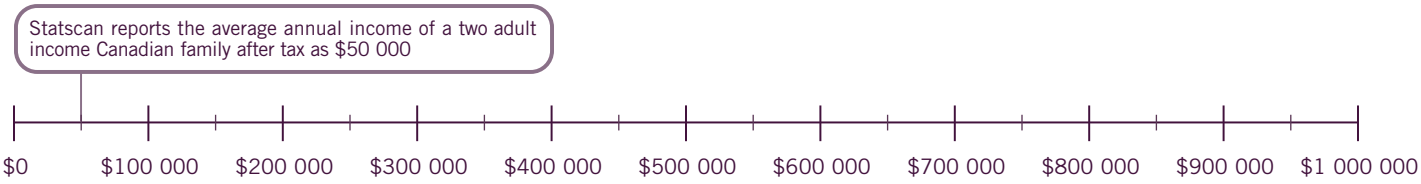
Founded a Company at 13

Yang Ping, age 13, founded Powersoft, a company that installs, downloads and updates software. It also offers Web site construction.

12-Year-Old CEO

Keith Peiris is the president and CEO of Cyberteks Design of London, Ontario – at 12 years of age! The company he founded designs Web pages. Although the head office of Cyberteks Design is in the basement of his parents home, it is already generating annual revenues of six figures.

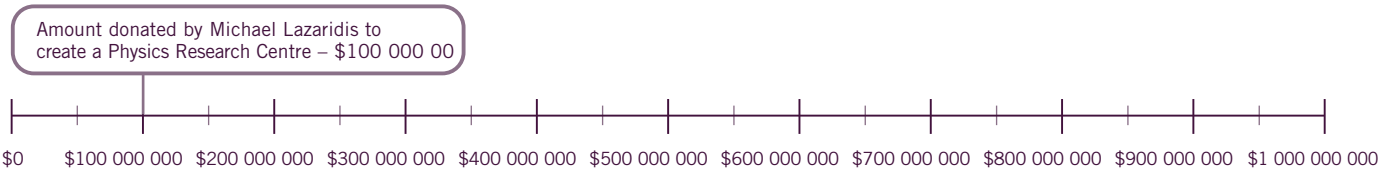
Understanding a Million Dollars



1 On the number line above, mark the locations of these approximate monetary amounts.

- The annual income of a two income Canadian family after tax in 2000 – $50 000
- The accumulated value of $10 per week invested at 12% over 40 years – $500 000
- The average cost of a home in Canada in 2000 – a quarter of a million dollars
- The average cost of a new mid size car with some special features in 2000 – $25 000
- The annual income from $1 000 000 invested at 12% per annum – $120 000
- The daily income from $1 000 000 000 invested at 12% per annum – $330 000

2 Calculate how long it would take you to give away a million dollars if you gave away $100 per day.



3 According to the *Canadian Business Magazine* (Dec. 2005), there are only 40 Canadian billionaires. The table shows some of the 100 richest Canadians who qualify as *multi-millionaires*. On the number line above, mark the approximate wealth of each of these four multi-millionaires.

Individual/Family	Business	Approximate Wealth
Vic De Zen	Plastics	$889 million
Ron Joyce	Fast Food	$834 million
Leon Family	Furniture	$458 million
Steve Stavro	Professional Sports	$226 million

"...Many educated people have little grasp for [large] numbers and are even unaware that a million is 1 000 000; a billion is 1 000 000 000; and a trillion, 1 000 000 000 000."

Innumeracy, John Allen Paulos

4 Calculate how long it would take you to give away a billion dollars if you gave out:
a) $100 per day **b)** $1 000 000 per day **c)** $100 per minute

5 The thickness of a Canadian one dollar coin is 1.95 mm. How high (in kilometres) would be a stack of:
a) a million one dollar coins? **b)** a billion one dollar coins?

Internet Investigation

Research a Canadian Entrepreneur

Search the Internet or the resource centre in your school to find information on any *three* of the following Canadian entrepreneurs:

Thomas G. Bata	Heather Reisman	Samuel Bronfman
Michael DeGroot	Paul Desmarais	Linda Lundstrom
E.S. Rogers	Tim Horton	Garfield Weston

Write a report of 100 words on each of them describing some of the following:

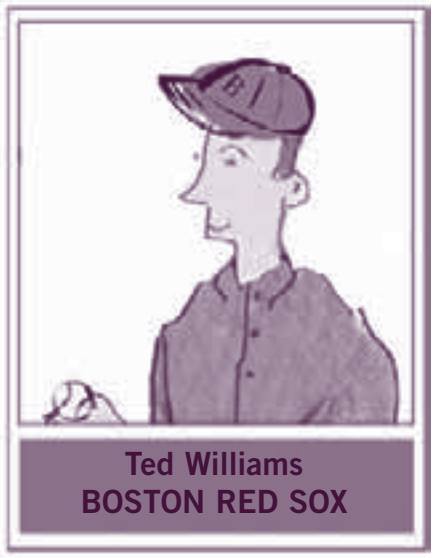
- date of their birth (and death if deceased)
- business in which they were involved
- what age they first began to build their business
- main contributions to the business world
- any charitable acts or gifts to charity
- an interesting story or anecdote that suggests why they were successful

Using numbers from your research, create a mathematics word problem for a partner to solve.

Investing: Sports Cards

A 1952 Mickey Mantle Topps baseball card is valued at $US 7 500.

A 1956 card of Hank Aaron is valued at $US 169.



A 1957 card of Ted Williams is valued at $US 389.

Some of those baseball cards that your grandfather bought for a nickel are worth a fortune! If only he'd saved them instead of tossing them out. Today some of these vintage cards are sought after by collectors who are willing to pay considerable amounts of money for them. Recently the Internet has brought together buyers and sellers and the market is hot. You can surf the Internet and find many sites where sports cards of all kinds are offered for sale. Can anyone find the Maurice Richard hockey card from the Parkies gum series? What an investment these cards turned out to be!

Discuss

- Why do you think people save baseball or hockey cards?
- What do you think determines the value of any particular card?
- In what countries of the world would you expect baseball cards to be worth the most? Give reasons for your answer.

1 The Mickey Mantle card cost $US 0.05 in 1952, and sold for $US 7 500 in 2001. Express its current value as a percentage of its original cost.

2 Express the current value of the Hank Aaron and the Ted Williams cards as a percentage of their original $US 0.05 costs?

3 Express the cost of the Mickey Mantle baseball card in Canadian dollars. (Visit *www.x-rates.com* to obtain today's exchange rate.)

Name _____

Percent Growth

Worksheet

A card was bought in 1952 for 5 cents, and is now worth 10 cents. There are many ways we can express this mathematically:

1 We can say that the card is now worth twice as much as in 1952. Mathematically, that is: $2 = \frac{10}{5}$

a) If the card is now worth 3 times as much as in 1952, how much is it worth today? Express your answer in cents, and use the formula to support your answer.

$$\text{number of times} = \frac{\text{worth today in cents}}{\text{original price in cents}}$$

The worth today is _____

b) If the card is now worth 20 cents, how many times the original 5 cent price is it now worth? Use the formula given in 1a).

The number of times the original price is _____

2 We can also say that 10 cents is 200% of the original price of 5 cents. Mathematically, that is: $200\% = \left(\frac{10}{5}\right) \times 100$

a) If the card is now worth 300% of the original price, how much is it worth today? Express your answer in cents, and use the formula to support your answer.

$$\text{percentage of original price} = \frac{(\text{worth today in cents})}{\text{original price in cents}} \times 100$$

The worth today is _____

b) If the card is now worth 20 cents, what percent of the original value is the card now worth? Use the formula given in 2a).

The percent of the original price is _____

3 We can say that the card grew 100% in value. Mathematically, that is: $200\% = \left(\frac{10 - 5}{5}\right) \times 100$

a) If the card grew 200% in value, how much is it worth today? Express your answer in cents, and use the formula to support your answer.

$$\text{percent growth} = \frac{(\text{worth today in cents} - \text{original price in cents})}{\text{original price in cents}} \times 100$$

Today the worth is _____

b) If the card is now worth 20 cents, what was the percentage growth between 1952 and today? Use the formula given in 3a).

The percent growth is _____

Investing in Art

High-priced art is sometimes a popular investment for the very wealthy. Among the great masters whose works sell for substantial amounts are da Vinci, van Gogh, Rembrandt and Picasso. People can bid for paintings that are offered for sale at auctions.

Other great masterpieces have been donated to galleries and museums where they are available for public viewing.

The *Mona Lisa* painted by Leonardo da Vinci is considered priceless. It was appraised at $US 100 000 000 in 1962, and it would now be worth considerably more. It is available for viewing at the Louvre in Paris, France.

In 1890, Vincent van Gogh painted this portrait of his physician, Dr. Gachet. It was sold in that year for $US 58. In 1911 it was resold for $US 3 861 and then resold again in 1938 for $US 53 000. In 1990 the painting sold for a record $US 82.5 million.

This painting titled *Yo Picasso* is a self portrait of Picasso painted in 1901. In 1989, it sold at auction for $US 47.8 million.

Discuss

- Why do you think people pay such large amounts for paintings?
- What do you think determines the value of any particular painting?
- Why is the original painting more valuable than a printed copy?
- Do you think it is easy to predict which paintings will increase substantially in value? Explain your answer.
- Do you think investing in painting is a good investment? Explain why or why not.

Use this formula to calculate the questions below. A = new value, B = old value, C = percentage growth:

$$C = 100\,\frac{(A - B)}{B}$$

4 By what percentage did the portrait of Dr. Gachet grow between:

a) 1890 and 1911? **b)** 1911 and 1938? **c)** 1938 and 1990?

d) In which of the above time intervals did the painting increase by the greatest percent

5 What is the 1989 selling price of the portrait *Yo Picasso* as a percent of the 1990 selling price of the portrait of Dr. Gachet?

6 What is the current value of the *Mona Lisa* if it is now 214% of its value in 1962?

Investigation: How Do You Calculate Growth Rate?

I think baseball cards offer the better investment because the Mickey Mantle card went from $0.05 to $7 500 in 49 years. That's a growth rate of about 27.5% per year.

Mathew

With Whom Do You Agree?

Sheena

I think that art is the better investment because the Dr. Gachet portrait increased from $58 to $82.5 million. That's a much larger percentage growth.

Discuss

- What does Mathew mean when he is talking about growth rates?
- How did Mathew calculate the growth rate per year? Many adults would attempt to calculate the growth rate by taking the percentage growth over 49 years and then dividing by 49 to get the annual growth. However, this does not give the correct growth rate. Why?

Mathew used a spreadsheet to determine how much 5¢ or $0.05 would grow to in 49 years for growth rates of 20%, 25%, and 30%. To do this:

- he entered the formulas you see in row 2 of the spreadsheet.
- then he entered the formulas in row 3 to multiply the entries in row 2 by the appropriate growth rate.
- he then highlighted the cells in row 3 and used the **FILL DOWN** command to extend the formulas in row 3 to the 50th row. Mathew then selected the *currency* format for displaying numbers (to get only two decimal digits) and the numerical display instead of formula display. The spreadsheet then displayed monetary amounts as shown on the following page.

	A	B	C	D
1	**Year**	**20% per Year**	**25% per Year**	**30% per Year**
2	1	=0.05*1.2	=0.05*1.25	=0.05*1.3
3	=$A2+1	=$B2*1.2	=$C2*1.25	=$D2*1.3
4	=$A3+1	=$B3*1.2	=$C3*1.25	=$D3*1.3

The bottom row displays the accumulated value of \$0.05 at the end of 49 years growing at 20%, 25% and 30%. Since \$7 500 is between \$2 802.60 and \$19 151.12, Mathew knows the growth rate is between 25% and 30%. He then changes the formulas in row 2 to 0.05*1.26, 0.05*1.27, and 0.05*1.28 to discover that the growth rate is between 27% and 28%. Repeating this process, he finds that the growth rate is approximately 27.5%.

48	47	\$263.32	\$1 793.66	\$11 332.03
49	48	\$315.99	\$2 242.08	\$14 731.63
50	49	\$379.18	\$2 802.60	\$19 151.12

What effect is Mathew trying to take into account by using this more complicated method of determining growth rate?

1 **a)** Use a spreadsheet to calculate the annual growth rate of the Dr. Gachet portrait for each of these periods.

(i) 1890 to 1911 **(ii)** 1911 to 1938 **(iii)** 1938 to 1990

b) In which period did the value of the portrait grow at the fastest annual rate?

c) In which period did the portrait increase most in value?

d) Is the period in which the portrait increased most in value the same as the period in which its annual growth rate was largest. Explain why or why not.

2 **a)** Use a spreadsheet to calculate the annual growth rate of the Dr. Gachet portrait between 1890 and 1990.

b) Is the annual growth rate of the Dr. Gachet portrait greater than the annual growth rate of the Mickey Mantle card? Explain.

c) Which of the two students do you agree with, Mathew or Sheena? Explain why.

3 The accumulated value of an amount of money M that grows at a rate i per year for n years is given by the formula:

$$M(1 + i)^n$$

Note that a rate of 25% means $i = 0.25$

a) Substitute $M = \$0.05$, $i = 0.27536$, and $n = 49$ into the formula above to verify that the Mickey Mantle card growing in value at 27.536% per year grows to about \$7 500 in 49 years.

b) Use the formula above to verify your answers to Exercise 1 a).

Internet Investigation:

How Fast Did the one-cent Black on Magenta stamp Increase in Value?

Use a search engine (e.g. Google, Yahoo) to find information about the stamp.

Write a report on one of the world's rarest stamp of about 200 words giving a short description of the various owners of this much desired treasure and the amounts they paid for it.

Calculate the annual rate of growth of the value of the world's rarest stamp from the time it was first purchased around 1910 at £120 (about \$US 600) until it was last purchased in 1980.

Dream Ride

You and three friends have decided to create the world's first virtual reality ride! This has been your dream project for as long as you can remember. All four of you have saved money wisely for several years now, and have $100 000 each.

After doing months of research, you have found out that it would cost approximately $1 million to build this ride. However, you also estimate that you would make over $2 million dollars a year from tourists once the ride is built.

You realize that together, you and your friends only have $400 000. However, you are confident that you can raise the $600 000 you need by asking people to loan you money. That is, you will ask people to invest in your virtual reality ride.

What will you give your investors – the people who will loan you money – in return for the loan?

CS–152

Stock Certificate

TOTAL SHARES _____

THIS CERTIFIES THAT _____ IS THE HOLDER OF

_____
(GROUP)

Virtual Reality Ride

WITNESS THE SIGNATURES OF THE GROUP ON THIS _____ DAY OF _____ , 20 _____ .

_____ SAMPLE _____

SECRETARY PRESIDENT

Investing in Companies

In the previous Activity, you learned that investing in *collectibles* such as sports cards, art, and stamps can be very profitable. The power of compound growth magnifies the increase in value of such investments. Other collectibles that also can yield substantial gains are:

		
Coins	Rare Books	Antiques

However, investing in collectibles is highly risky; public tastes change and the future value of a collectible is difficult to predict.

Stocks are another potential wealth building investment. For example, Berkshire Hathaway Inc., owned by billionaire Warren Buffett, makes its money through owning *stocks* in different companies. A share in Berkshire Hathaway Inc. rose from $40 in 1976 to $68 000 on April 30, 2001. Buffett's *strategy* that many investors follow today, was to buy shares of companies who had strong profits, strong management and unique products.

There is no guarantee that whether you choose stocks, collectibles or real estate will make you money. In the case of stocks, the more you know about the stock market, the more likely you are to succeed with this kind of investment.

1 Let's discover if the Berkshire Hathaway stock from 1976 to 2001 has an annual rate of growth greater than the annual rate of growth of the Mickey Mantle card or the Dr. Gachet portrait.

a) First record the annual growth rates for the Mickey Mantle card and the Dr. Gachet portrait.

b) Compute what the value of $40 per share would be if it compounded at the same rate as the Mickey Mantle card between 1976 and 2001. Use the formula from Activity 9: $M(1+i)^n$

c) Compare the values of the Berkshire Hathaway stock, the Mickey Mantle card and the Dr. Gachet portrait. Based on this information, which seems to have been the best investment?

How Do Stock Markets Work?

Suppose you set up a business cutting lawns, washing cars or creating Web pages. Each year you make a profit and expand your business. Eventually, you need more money to buy equipment and further expand your business to increase your profits.

You offer your friends the opportunity to contribute money to your business. In return you issue them a certificate stating that they own shares (stocks) of your company and will receive a portion of the profits. Your friends may sell these shares to strangers who want to own a share of your company. Your company shares have been *traded* – bought and sold.

A *stock exchange* works the same way. It's a market where people come together to buy and sell, (i.e., *trade*) shares of public companies. You can open an account and buy shares and then receive a portion of the profits of the company (called *dividends*) if and when they are offered. This is called becoming a *shareholder*. You can subsequently sell your shares at a higher price and make a profit (called a *capital gain*) or at a lower price than you paid and suffer a loss (called a *capital loss*.)

Traditionally, stock markets have had a *trading floor* where traders used hand signals to transact trades. Technology and the Internet eliminated the need for a physical location where trading would take place. In 1997, the Toronto Stock Exchange (TSX), the largest stock market in Canada, closed its trading floor and established a computerized trading system. All trades take place on linked computers. The New York Stock Exchange, by contrast, still maintains a trading floor. Trading takes place during set hours in a day. When the day is over, this is called *market close*.

Discuss

- What is a stock exchange?
- What is a share?
- What are dividends?
- What is a capital gain?
- Where do traders work?

Traders work in their own location and not at the TSX

How Do Stock Markets Work? – The Process

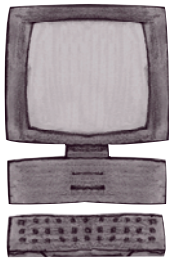
Process

The stock exchange manages the trading process. It determines who may trade and which company's shares may trade. *Brokers* (people who buy and sell stocks for others) carry out the trades. Only brokers who work for qualified firms, called Participating Organizations, may access the exchange.

How the Trading Process works:

Step 1
A client places an order with a broker at a Toronto Stock Exchange participating organization by phone, Internet, or in person.

Step 2
Orders are matched electronically by the Exchange computer system. This means that the price is an agreed-upon value for the transaction. The *bid* is the highest price a buyer is willing to pay for a stock. The *ask* is the lowest price a seller is willing to accept for his or her stock. When buyers and sellers match it means they agree on a price and a *trade* is made.



Step 3
When a match is found the broker informs the client of the trade price plus the *commission*, or the amount of money the broker charges for his/her service.

Buy Sell

Buyer	Bid Price	Seller	Ask Price	
A	$99	**E**	**$102**	**= Trade**
B	$100	F	$103	
C	**$102**	G	$104	

1 Write a sentence or two to explain the meaning of each of the following:

a) a stock **d)** a dividend **g)** bid

b) a stock exchange **e)** a capital gain **h)** ask

c) a profit **f)** a capital loss

2 Suppose you bought 20 shares of a stock for $10 per share and sold your 20 shares a year later at $14 per share.

a) What was your total cost?

b) How much did you receive from the sale of your shares?

c) How much profit did you make?

d) What was your profit as a percent of your investment?

e) By what percent did your investment grow?

Investigation: How Do You Read a Stock Page?

How do you know if your stock is doing well? One place to find information is in the newspaper. A stock page in the financial section of a newspaper is something that frightens many adults because it looks so complicated. Actually it's easy to read when you know what it means. The row in which your stock is listed, tells you the following about your stock:

- the highest and lowest *share price* for your stock during the past year
- the symbol for your stock that you enter into the computer to get information
- the high and low *share prices* of your stock during the previous day
- the share price of your stock when the market closed yesterday
- the change in the price of your stock yesterday from the previous day
- the number of *board lots* (or 1 share chunks) of your stock that traded yesterday
- the *dividend* that your stock paid in the most recent past year
- the *yield*, i.e., the dividend as a percent of the share price at yesterday's close
- the *P/E* ratio, i.e. the share price of your stock divided by the *earnings per share*.

Bank of Calgary Stock, May 30, 2001:

1 Use the newspaper display above to answer the following questions

Year High	Year Low	Stock	Symbol	High	Low	Close	Chg	Vol 00s	Div	Yield	P/E
60.60	42.00	Bank of Calgary	BOC	59.95	58.60	59.80	+.40	9560	2.00	3.34	10.5

a) What was the price of one share of the Bank of Calgary stock at the close of the market yesterday?

b) The share price of the Bank of Calgary stock went up and down all day. What was the lowest share price it reached yesterday? What was its highest share price?

c) Was the share price of the Bank of Calgary stock at the close of the market yesterday up or down from the previous day? By how much did it increase or decrease?

d) How many board lots of the Bank of Calgary stock were traded yesterday? How many shares were traded?

e) How much dividend did the Bank of Calgary pay per share during the previous year?

f) What is the current percentage yield on the Bank of Calgary stock?

A newspaper displays the following trading information for September 20, 2001 on the stock of Lazerlink.com Inc. but the last part was torn off.

Year High	Year Low	Stock	Symbol	High	Low	Close	Chg	Vol 00s	Div
112.80	34.00	Lazerlink.com	LLK	76.50	64.40	72.20	–4.60	17203	0.50

2 Use the display above to answer the following questions.

a) What was the price of one share of the Lazerlink.com stock at the close of the market on September 20, 2001?

b) What was the lowest share price that Lazerlink.com stock reached on September 20? What was its highest share price?

c) Was the share price of Lazerlink.com at the close of the market on September 20 up or down from the share price on September 19? By how much did it increase or decrease?

d) How many shares were traded?

e) What was the highest share price enjoyed by Lazerlink during the previous year? What was its lowest share price the previous year?

f) How much dividend did Lazerlink pay per share during the previous year?

g) What was the percentage yield on the Lazerlink stock?

h) If you had purchased 100 shares of Lazerlink when it was at its lowest share price for the year and then sold it on September 20, 2001, how much money would you have made on the stock?

i) If you had purchased 100 shares of Lazerlink when it was at its highest share price for the year and then sold it on September 20, 2001, how much money would you have lost on the stock?

Newspaper Investigation

3 Get the financial section of a newspaper from your teacher. Select a stock on the Toronto Stock Exchange.

Write a report that names the stock and tells:

- the share price of the stock at the closing of the market
- the highest and lowest share prices in the previous year
- the dividend and the yield

Browse through the stocks and pick one that you think is a good investment. Explain why you chose it.